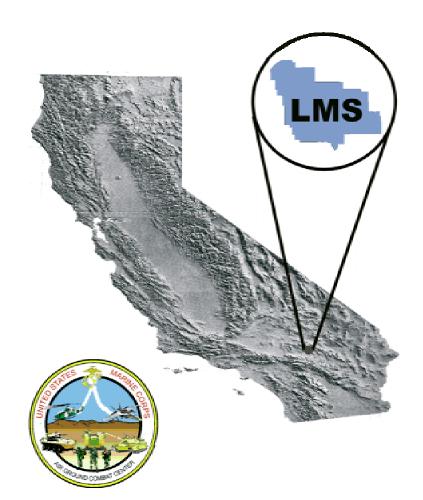


Marine Corps Air Ground Combat Center (MCAGCC) Land Management System (LMS) Military Field Application Site FY00 In-Progress Review

by Heidi R. Howard, Dick Gebhart, and William Goran

November 2000



Foreword

This study was conducted for the U.S. Army Corps of Engineers Research and Development Directorate, which established the Land Management System (LMS) Special Project Office in March 1997. The proponents are Dr. Lewis E. Link, Director of Research and Development for the U.S. Army Corps of Engineers (CERD-Z), and Dr. Donald Leverenz, Deputy Director of CERD.

The work was performed by the Land and Heritage Conservation Branch (CN-C) of the Installations Division (CN), Construction Engineering Research Laboratory (CERL). The CERL Principal Investigator was Dick Gebhart. Part of this work was done by Heidi Howard, CERL. The technical editor was Gloria J. Wienke, Information Technology Laboratory. Robert E. Riggins is Chief, CEERD-CN-C and Dr. John T. Bandy is Chief, CEERD-CN. The associated Technical Director was Dr. William D. Severinghaus, CEERD-TD. The Acting Director of CERL is William D. Goran.

CERL is an element of the U.S. Army Engineer Research and Development Center (ERDC), U.S. Army Corps of Engineers. The Director of ERDC is Dr. James R. Houston and the Commander is COL James S. Weller, EN.

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The findings of this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

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1 Introduction

Background

The Land Management System

The Land Management System (LMS) is an initiative of the U.S. Army Corps of Engineers (USACE) Engineer Research and Development Center (ERDC) focused on improving landscape analysis and landscape management capabilities in several of the Corps of Engineers major mission areas. These mission areas include the U.S. Army Civil Works Programs (navigation, flood control, water supply and quality, recreation, etc.), military installations operations and management (specifically military land management), and military engineering and terrain related operations (trafficability analysis, military hydrology, littoral operations, line of sight analysis, etc.).

The purpose of LMS is to provide relevant science, tools, and information to land and water resource managers and decisionmakers with the goal of enhancing their ability to understand and communicate past, current, and potential impacts of management actions on land and water resources. LMS was established, in part, to improve synergism in technology development across each of these mission areas, to improve USACE'S and the Department of Defense's (DoD's) ability to represent landscape processes and features, and forecast future landscape conditions, based upon alternative scenarios.

The LMS initiative had its roots in a study initiated in autumn 1995 related to modeling and simulation capabilities developed or used by the Corps of Engineers, related to landscape or geoprocesses. After this study, the Director of Research and Development, in consultation with the ERDC laboratory directors and others, decided to establish the LMS initiative.

To accomplish the goals of LMS, a Special Project Office for LMS was established, with representatives from most of the ERDC Laboratories, the Hydrologic Engineering Center of the Water Resources Support Center, and several Corps of Engineer Districts. The project director, associate directors, and the various organizational representatives comprise the LMS Development Team. Researchers throughout the ERDC laboratories (and their partners) form work teams to per-

form specific tasks associated with LMS; these efforts are dovetailed into numerous existing technology programs.

Plans for the LMS Initiative are available (and updated) on the LMS website (http://www.denix.osd.mil/LMS) under the Defense Environmental Network Information eXchange (DENIX). For more information please see the ERDC/CERL Technical Report 99/60, *Plans for the Land Management System (LMS) Initiative* on the LMS website.

The LMS Field Application Program

The LMS Field Application Program has four major purposes:

- 1. To provide problem-solving and partnering relations between the Corps of Engineers scientists, technology developers, and interested and innovative landscape/natural resource managers in USACE's major mission areas.
- 2. To provide site-specific and problem-specific input into the design of LMS2000 functional capabilities.
- 3. To provide technology test environments where scientists, technology developers, and resource managers/analysts together can tackle issues, test solutions, adjust approaches, capture costs and benefits, and "demonstrate" the results to interested parties.
- 4. To provide a framework for planning the transfer of LMS technology to land/water resource managers, both at the sites for demonstrations and other similar sites.

Field application sites were selected based on the following criteria:

- Interest from land/water resource managers in infusing new capabilities into their business practices, and developing collaborative partnerships with scientists and technology providers.
- 2. Representative land/water resources management issues such as high levels of use, sensitive resources, competing multiple uses and stakeholders, and other problems and issues identified by user groups as important.
- 3. Importance of the site or problem set to the mission.

4. Support and concurrence for LMS Field Applications not only at the local level, but also from across the organizational management.

5. Synergism with existing programs/efforts.

The original sites selected for field applications were Fort Hood, TX, and in three locations in the Upper Mississippi River Basin: (1) Redwood Basin, along the Minnesota River in Southern Minnesota, (2) Pool 8 on the Mississippi River near LaCrosse, WI, and (3) Peoria Lakes, on the Illinois River at Peoria, IL. In 1999, the Marine Corps Air Ground Combat Center at Twentynine Palms, CA, was officially designated as a field application site. Currently, Fort Benning, GA, is being considered as an additional field application site.

Dr. John Barko serves as the LMS Field Application Program Director. In addition, there is a Field Application Site Coordinator for each site. Dr. Dick Gebhart serves in this capacity for the MCAGCC site. MCAGCC has one user point of contact (POC), Mr. Kip Otis-Diehl from the Natural Resources and Environmental Affairs Directorate at MCAGCC.

The MCAGCC Military Field Application Site

MCAGCC is composed of 596,480 acres (932 square miles [2414 sq km]) within the heart of the Mojave Desert, 40 miles (64 km) north of Palm Springs, CA. It was established in 1952. The desert terrain and arid climate offer prime training conditions to carry out MCAGCC's mission. The primary mission is to develop, administer, and evaluate the Marine Corps' Combined Arms Exercise (CAX) training. Annually 50,000 to 60,000 soldiers are processed through the CAX program. An additional 8,000 Marines are trained in electronic fundamentals, operational communications, air control/anti-air warfare operations, and communication/electronic maintenance at the Marine Corps Communication-Electronics School (MCCESS) at MCAGCC.

The topography and climate at MCAGCC present unique natural resource management issues. The fragile desert ecosystem is highly susceptible to impacts that in most areas are normally insignificant. The repair of these impacts through natural processes may take thousands of years. Land managers are responsible for ensuring the sustainable usefulness of training areas by minimizing impacts on plant communities, soils, water, and animal communities, and through monitoring of training impacts. Land managers need accessible tools for monitoring and predicting these impacts. Monitoring and predicting impacts on training lands will ensure safe and effective training lands for both troops and the Mojave Desert ecosystem.

LMS Field Application Program Transitions

The field application program for LMS both shapes the development of new LMS capabilities and tests these capabilities to help solve management and landscape analysis problems in the field. The field application efforts provide opportunities to test, evaluate, modify, and document how LMS capabilities help to address specific user problems and how LMS results and capabilities fit into decision processes at user sites.

Field Application Site In-Progress Reviews (IPRs) are designed to ensure that the stages of evaluation, modification, and documentation are fulfilled. These reviews also allow other interested parties to look over the shoulders of those involved at the host site and evaluate the value of applying LMS investments and results at other sites.

Preliminary contact with MCAGCC was initiated in September of 1998, followed by a letter of invitation to serve as a field application site in January of 1999. The initial LMS Needs Assessment workshop was held at MCAGCC during February of 1999 to identify and prioritize land/water resource management issues at the site. A plan was then developed and projects initiated to address these plans. This report documents the IPR, user recommendations, and post-IPR follow-up actions.

Objectives

The objectives of this IPR were to provide a forum where personnel involved with specific MCAGCC Land Management System Military Field Application projects could discuss the progress of each effort, identify the relationships between projects, and solicit input from potential users of the resulting products.

Approach

The first IPR workshop was held 13 April 2000, at the Holiday Inn - Palm Mountain Resort in Palm Springs, CA. The IPR consisted of presentations on LMS and individual projects. Following project presentations, inputs from installation personnel and others present were obtained. Prior to the meeting closure, user input was discussed and actions were defined to address each issue. Results of the IPR are documented in this report to ensure project improvements and adjustments occur and to assist with the next IPR.

Scope

The MCAGCC LMS Military Field Application IPR only addresses projects associated with the MCAGCC LMS Military Field Application. This report does not attempt to address projects and issues associated with other military and civil works LMS field applications.

Mode of Technology Transfer

This report documents the presentations and discussions of the MCAGCC LMS Military Field Application IPR. Technical concerns and unresolved issues associated with individual projects are being addressed by the project investigators on an individual project basis.

2 Agenda for the FY00 MCAGCC LMS Military Field Application Site IPR

The agenda for the MCAGCC LMS Military Demonstration FY00 IPR is provided below.

Wednesday, 13 April 2000

8:15-8:45	Overall LMS Introduction: Bill Goran
8:45-9:15	MCAGCC Introduction: Dick Gebhart Inter-connection of projects and user requirements
9:15-10:15	Web-based Map Dissemination and Data Enterprise Repository Design and Test: Kelly Dilks
10:15-10:30	Break
10:30-11:30	Wind Erosion: Ed Skidmore
11:30-12:00	LCTA/ITAM at MCAGCC: Liz Kellogg
12:00-13:00	Lunch Break
13:00-13:30	SERDP Remote Sensing: Paul Tueller
13:30-15:00	Carrying Capacity: David Price, Terry McLendon, and Mike Childress
15:00-15:15	Break
15:15-16:00	Comment and Review Feedback from MCAGCC POCs
16:00-16:45	Input from other participating organizations
16:45-17:00	Closing remarks, IPR conclusion.

3 MCAGCC LMS Military Field Application Site IPR Attendees

The following individuals attended the FY00 MCAGCC LMS Military Field Application Site IPR.

NAME	ORGANIZATION
Lorrie Agnew	MCAGCC
Mike Childress	Shepherd Miller, Inc.
Kelly Dilks	ERDC/CERL
Clarence Everly	Mojave Desert Eco. Program
Jeff Foisy	Mojave Desert Eco. Program
Tom Frank	University of Illinois
Dick Gebhart	ERDC/CERL
Bill Goran	ERDC/CERL
Heidi Howard	ERDC/CERL
Liz Kellogg	Tierra Data Systems
Richard Lawrence	ESRI
Dawn Lawson	Naval Facilities Eng.
Terry McLendon	Shepherd Miller, Inc.
Kip Otis-Diehl	MCAGCC
Val Prehoda	MCAGCC
David Price	ERDC/CERL
Doug Ramsey	Utah State University
Ed Skidmore	USDA-ARS
Ruth Sparks	Fort Irwin
Paul Tueller	University of Nevada Reno
Scott Tweddale	ERDC/CERL
Robert Washington-Allen	Oakridge National Laboratories

4 MCAGCC LMS Military Field Application Site IPR Project Presentations

The following pages provide briefing materials presented at the MCAGCC LMS Military Field Application Site IPR. Each section provides the presenter's name and the presentation materials.

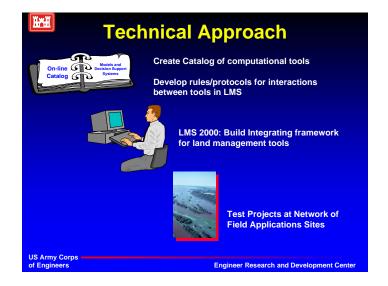
PRESENTATION: The Land Management System.

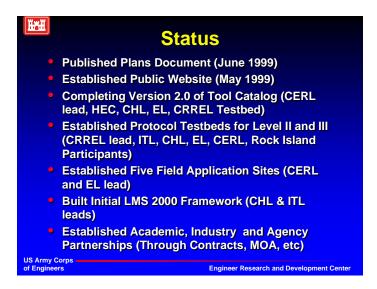
PRESENTER: William Goran.





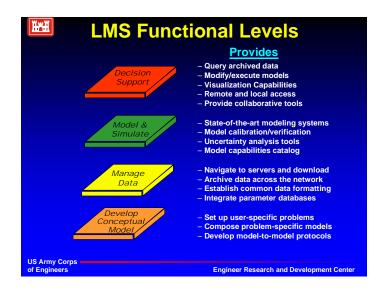


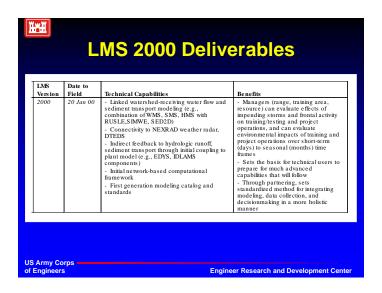


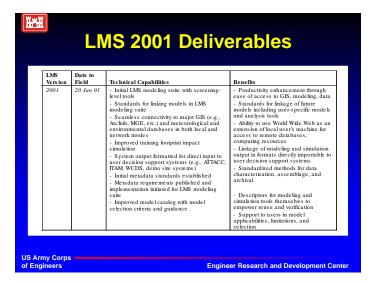


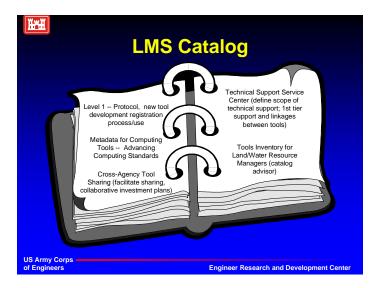


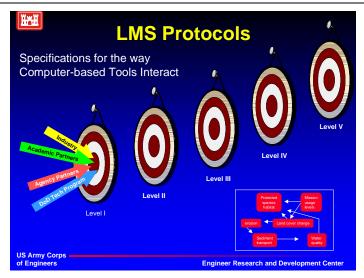


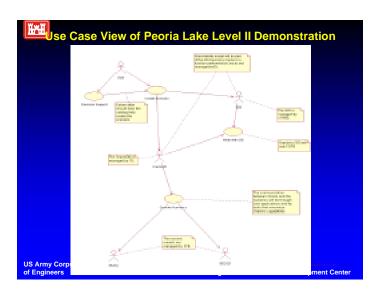


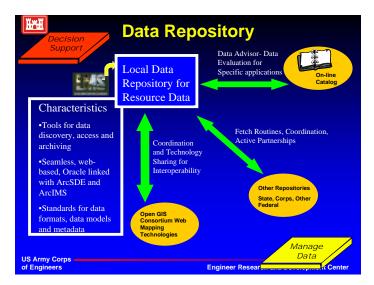


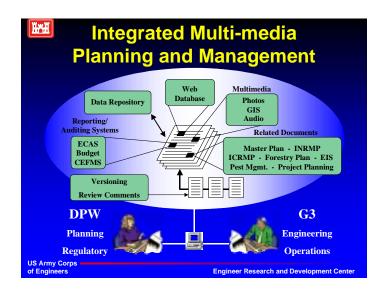


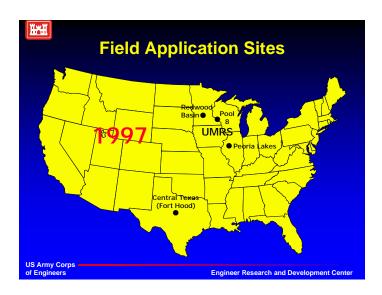


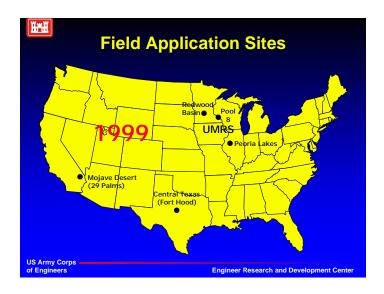


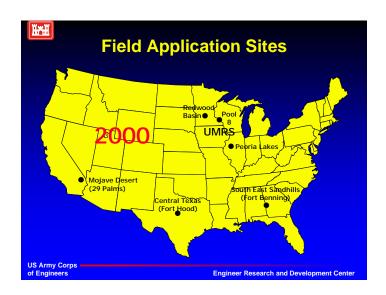






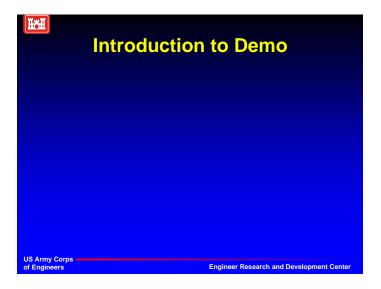




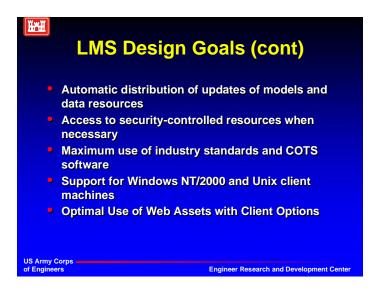


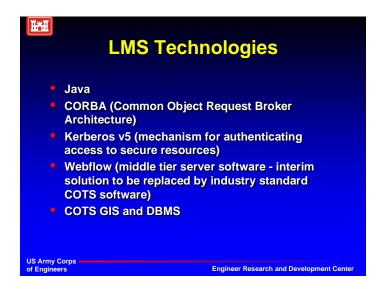


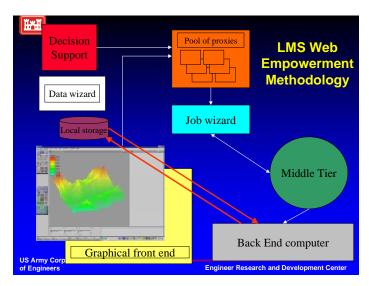


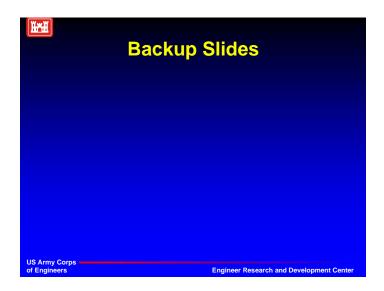


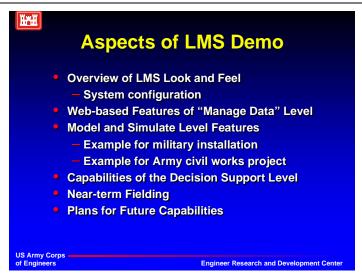
LMS Design Goals Seamless access to distributed resources (models, data, computers) User-friendly graphical user interface (GUI) Ability to readily incorporate legacy models Ability to readily integrate new technologies (e.g., object-oriented models) Ability to readily integrate evolving protocol mechanisms Archiving of selected data and model output

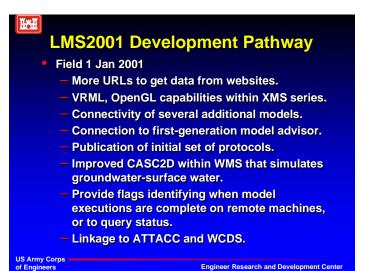












LMS2001 Development Pathway
Continued

Initial conceptual modeling environment.

Improved training distribution modeling

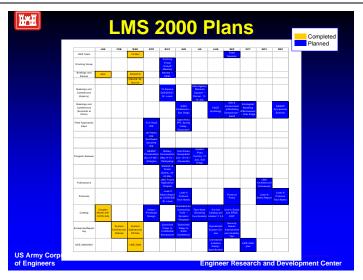
Initial decision support tools, including ability to archive model results, query them.

Integration of several additional models.

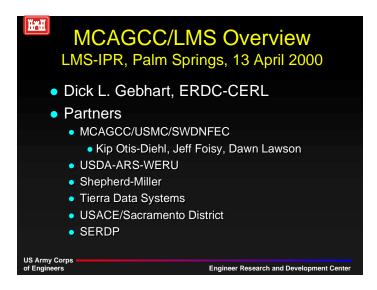
Complete link to OO-IDLAMS with feedback from its models to/from LMS hydrology codes.

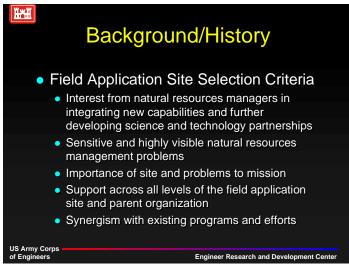
Ability to log into LMS data repository from non-local machine into LMS servers.

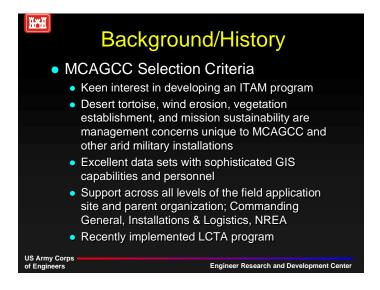
Initial capability to manipulate key variables of calibrated/verified user model and execute.

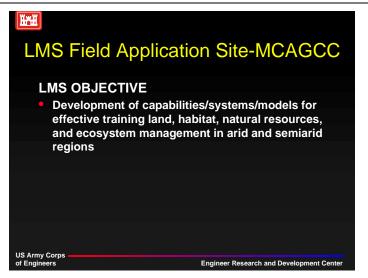


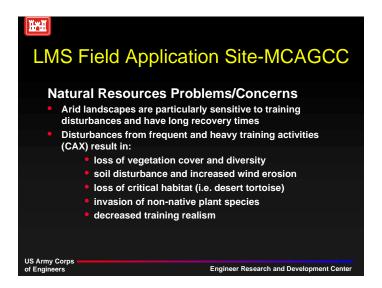
PRESENTATION: MCAGCC LMS Military Field Application Program Overview. PRESENTER: Dick Gebhart.

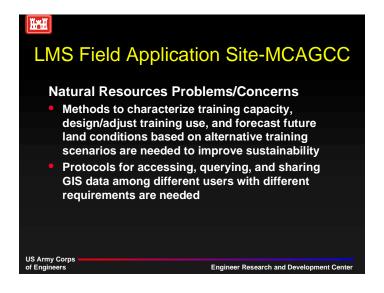


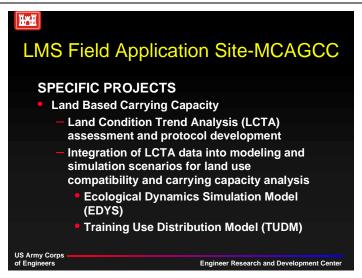


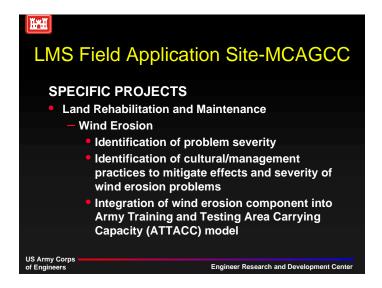


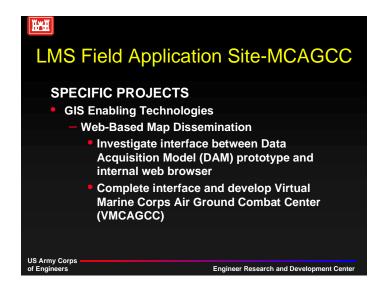


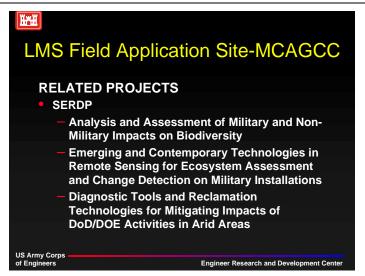


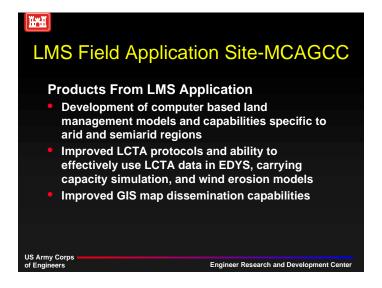


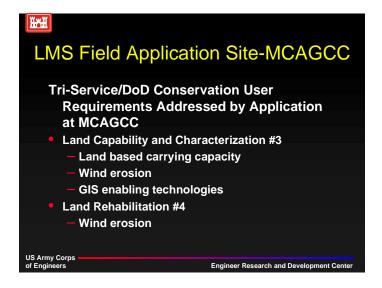


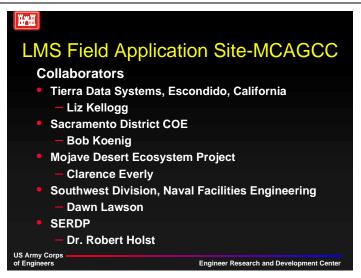


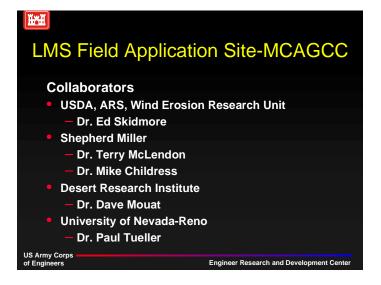






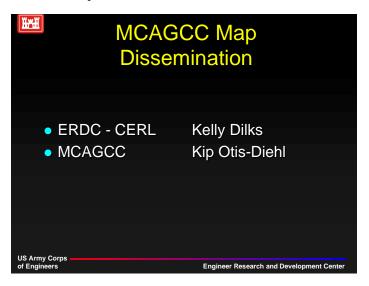


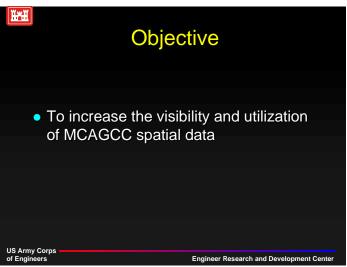




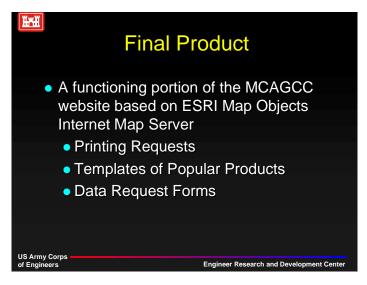
PRESENTATION: MCAGCC Map Dissemination.

PRESENTER: Kelly Dilks.

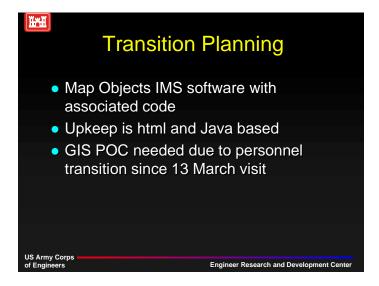




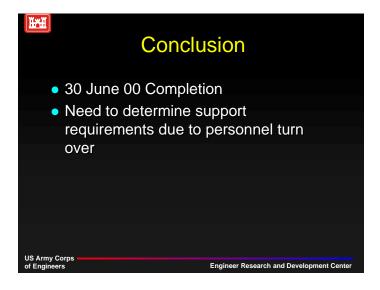






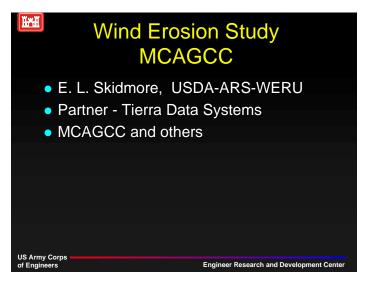


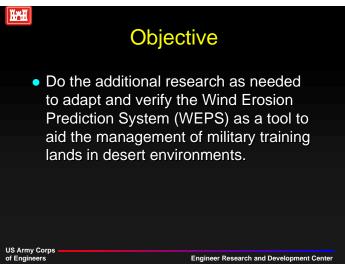


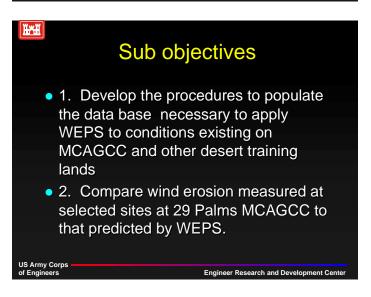


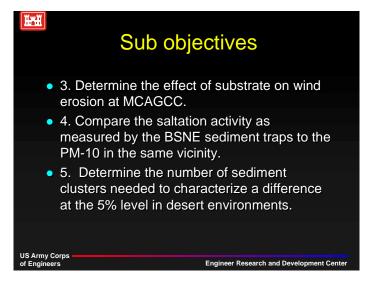
PRESENTATION: Wind Erosion Study at MCAGCC.

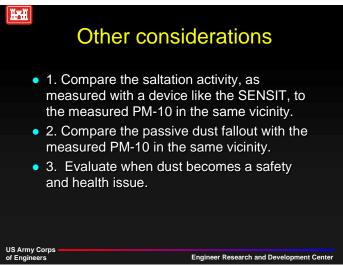
PRESENTER: Edward Skidmore.

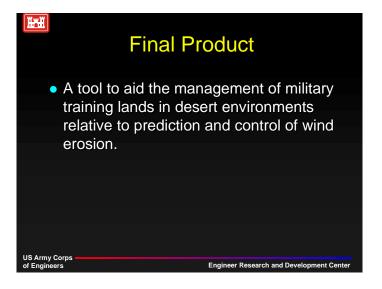


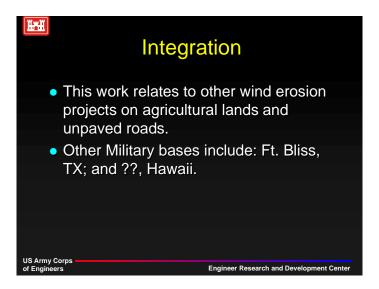


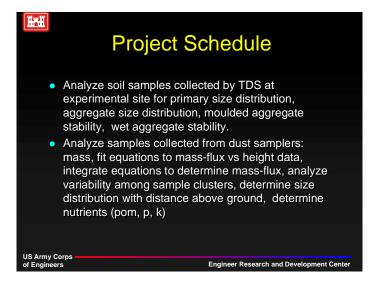


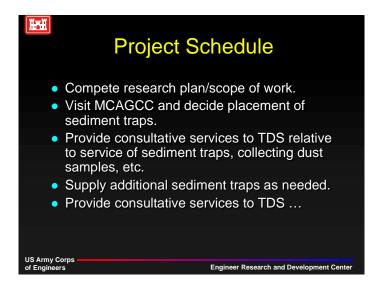


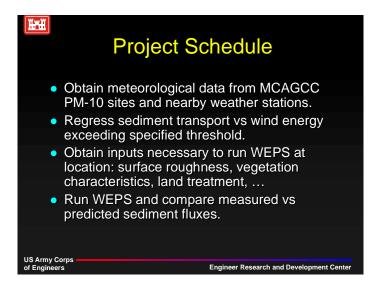


















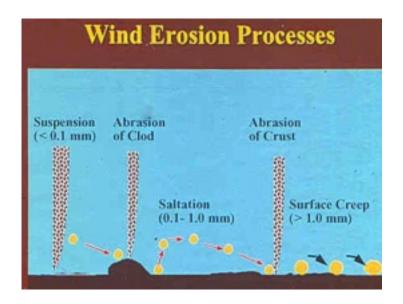








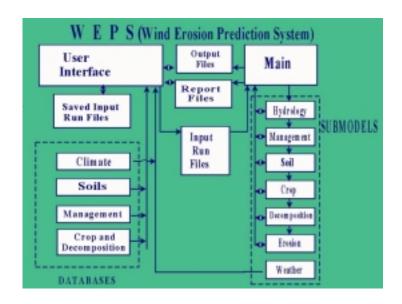






















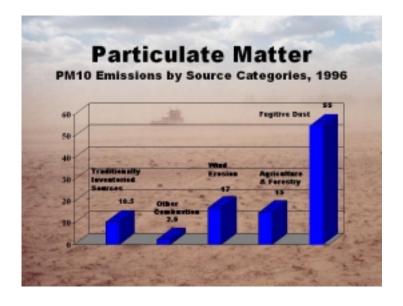




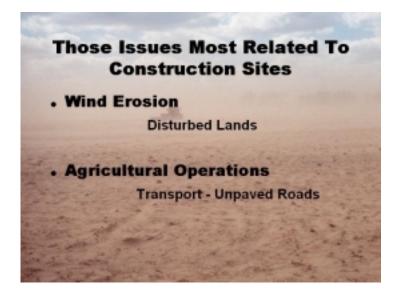
Protecting Ambient Air Quality National Ambient Air Quality Standards Primary - protect health with adequate margin of safety Secondary- protect public welfare & the environment (e.g. crops, vegetation & visibility) Particulate matter, Ozone, Pb, CO, NO₂ & SO₂ Reviewed every five years

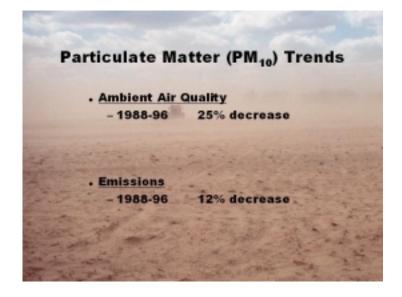
National Ambie	nt Air Quanty a	Standards (NAAQS
POLLUTANT	STANDARD VALUE	STANDARD TYPE
Carbon Monoxide (CO)		
8-hour Average	-10 mg/m²	Primary
1-hour Average	40 mg/m²	Primary
Nitrogen Dioxide (NO ₂)		
Annual Hean	100 µg/m²	Primary & Secondary
The Party of the P	4 75 mm	THE CONTRACTOR
Ozone (O ₃)		
6-hour Average 8-hour Average	235 pg m ² 167 pg m ²	Primary & Secondary Primary & Secondary
Lead (Pb)	The state of the s	A STATE OF THE STA
Quarterly Average	1.5 pg/m²	Primary & Secondary

Particulate < 10 (Pi Annual Mean	M-10) 50 μg/m²	Primary & Secondary
24-hour Average	150 µg/m²	Primary & Secondary
	.10	
Particulate < 2.5 (PM-	2.5)	
Annual Mean	15 µg/m ³	Primary & Secondary
24-hour Average	65 µg/m²	Primary & Secondary
Sulfur Dioxide (SO ₃)	-	
Annual Mean	- 80 µg/m²	Primary
	E That	1



FUGITIVE DUST PI ESTIMATES FOR 1990 I CARLSON, STU	BY EPA. BARNARD,
Category	Thousand Tons
Non-paved roads	15,515
Paved roads	7,977
Construction Activ	ities 10,044
Wind Erosion	4,141
Agricultural tillage	6,968
Mining & Quarrying	372
Burning	1.143
In 1988 Wind Erosion was 17	







ARS - AIR QUALITY WORKSHOP (CONT) Primary Particulate Issues . Agricultural Burning Alternatives . Wind Erosion . Agricultural Operation . Agricultural Industry . Bio-Particles

AIR QUALITY MEASURES ON CONSTRUCTION SITES

Conflict: Opposing action of incompatibles

Incompatibles:

- 1. EPA set Air Quality Standards
- Activities on construction sites produce airborne particulates to exceed standards

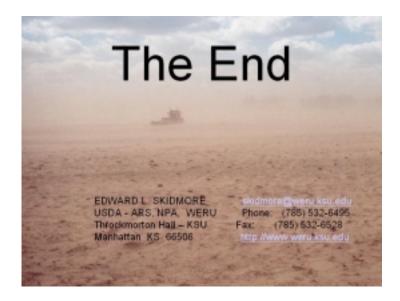
Resolution: Remove one of the incompatibles

Scenario:

- 1. Qualify the effects of construction actions
- 2. Increase understanding of processes
- 3. Develop predictive capability
- 4. Develop appropriate control measures
- 5. Transfer the technology

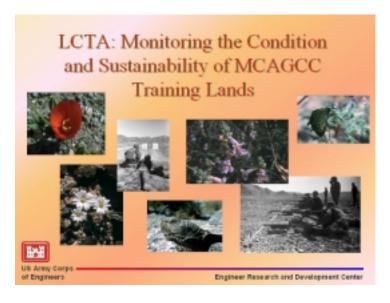
PRESIDENTS PROPOSED BUDGET

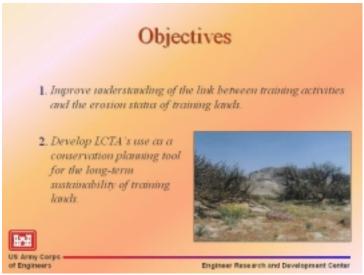
- · Congressional action
- If funding were available what research would best help you resolve the conflict?



PRESENTATION: LCTA: Monitoring the Condition and Sustainability of

MCAGCC Training Lands. PRESENTER: Liz Kellogg.







- LCTA Program initiated 1997.
 - LCTA in the desert requires a different approach to assessing trend because of long recovery times.



Sustainability of training lands needs to be defined in the context of this specific ecosystem, in order to be an effective conservation planning tool.



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Approach



What's different about the desert?

- Recovery times are longer than the time scale for management.
- Extreme events drive environmental change more than average annual events.
- Resources are concentrated in shrub islands...water, nutrients, and diversity...and disturbance changes this.



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Engineer Research and Development Center

Approach



What's different about the desert (cont.)?

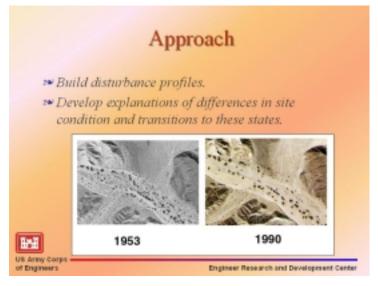
- Cover may increase with a low amount of disturbance, but still have structural and food web simplification.
- Soil surface condition and soil profile development affect water availability to plants...and disturbance changes this.



US Army Corp of Engineers

Engineer Research and Development Center

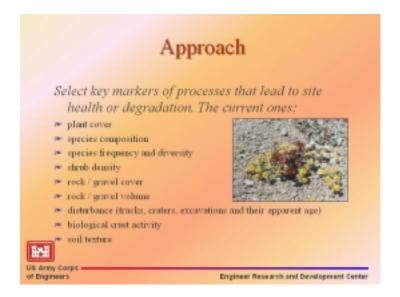


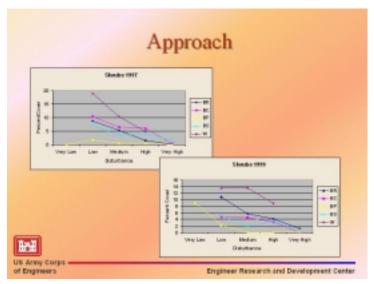


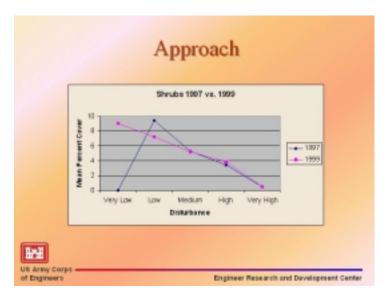
Approach

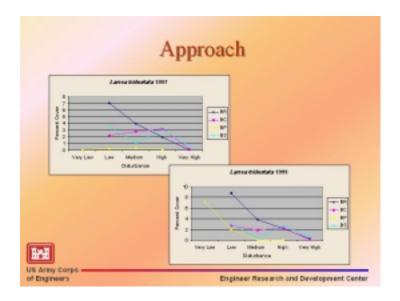
- Long-term monitoring transects are placed along disturbance gradients, within 1 km of each other, in similar sites with respect to geology, landform, surface substrate and topographic position. This may be called "space-for-time substitution."
- → Reference (habitat) vs. use comparisons.
- Trend over time.

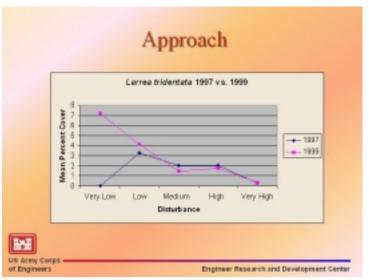


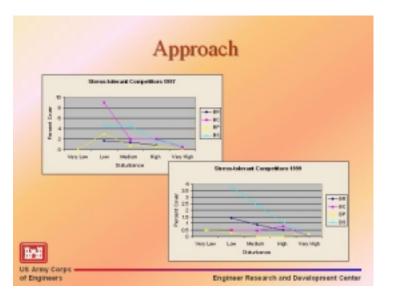


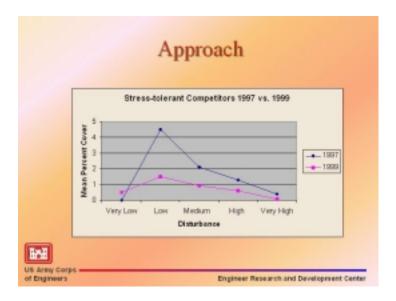


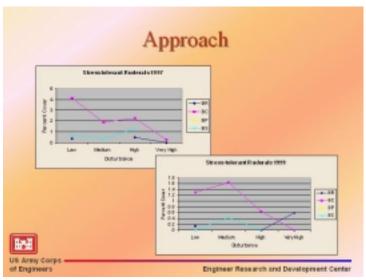


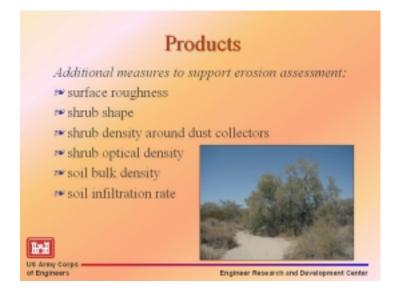














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US Army Corps of Engineers



Impact on Installation Operations

- Improved wind erosion prediction because of link to on-the-ground disturbance and link to other factors besides soil texture.
- Improved water erosion prediction due to data on infiltration, compaction.
- Improved set of variables for assessing effects of military training.



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Conclusion

- Project completion in approximately 12 months.
- Need to develop GIS-based predictive capabilities.



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Recommendations

- Develop link to NRCS ecosite mapping units and % cover of coarse fragments from Soil Survey.
- Separate compliance versus sustainability concerns.



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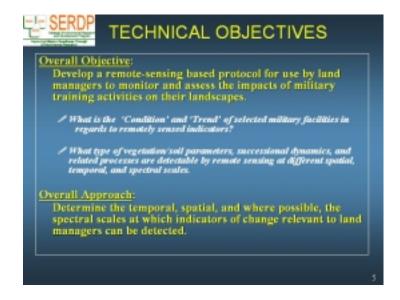
PRESENTATION: Emerging and Contemporary Technologies in Remote Sensing for Ecosystem Assessment and Change Detection on Military Reservations. PRESENTER: Paul Tueller, Doug Ramsey.



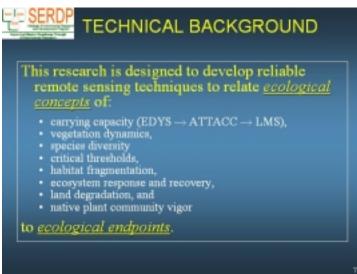






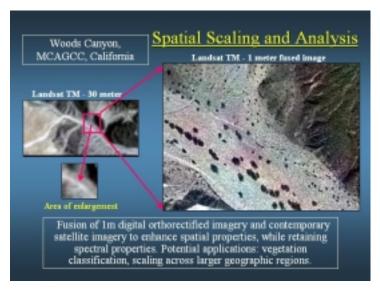


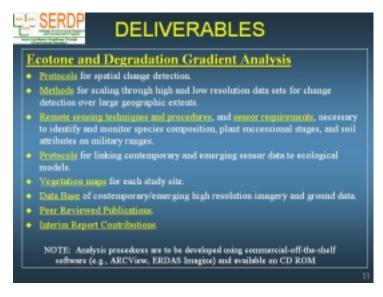


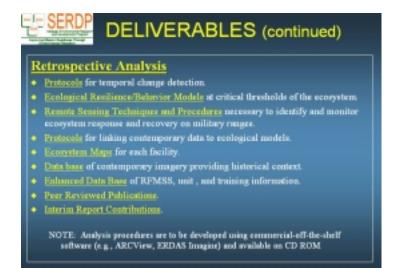












E-SERDP

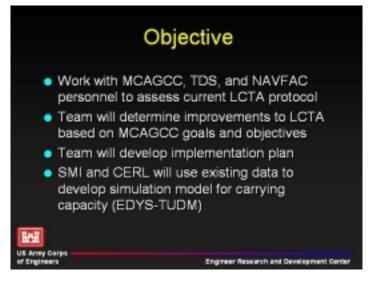
TRANSITION PLAN

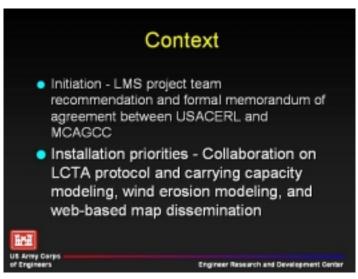
- Spatial change detection will be demonstrated, validated, and documented both for improved input data to several ecological models and also for implementation at other installations at the completion of this effort.
- Temporal change detection and uncertainty analysis protocols will be demonstrated, validated, and documented for improving ecological understanding and modeling. Protocols will be applicable to other installations at the completion of this effort.
- Technology transfer will occur via scientific and technical literature, CD-ROM publication and distribution, and Internet sites prepared as a part of this study with specific information for each study location. See: www.gis.usa.edu/-serdp and www.gis.uiuc.edu/mojave/emerging.htm
- Protocols are being incorporated into widely used off-the-shelf software (e.g., ESRI ArcView GIS, ERDAS Imagine image processing software).

13

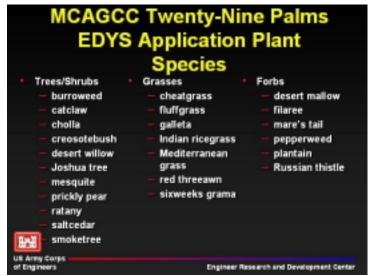
PRESENTATION: LCTA Collaboration and Land Use Carrying Capacity. PRESENTER: David Price and Terry McLendon.

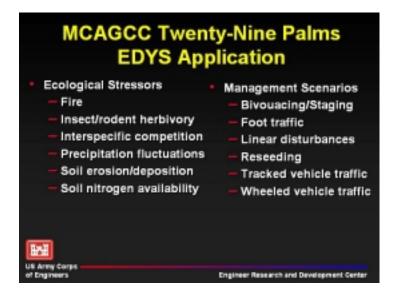


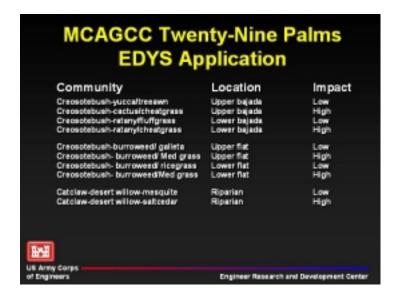


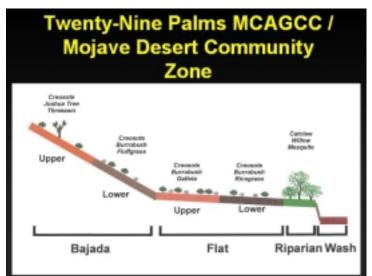


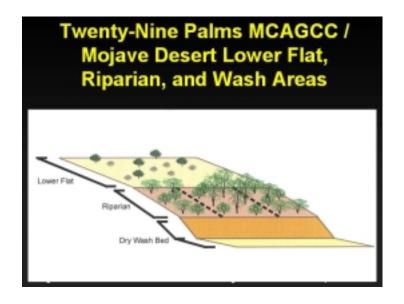




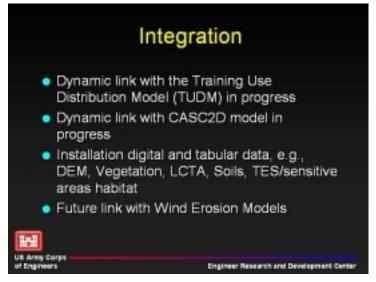


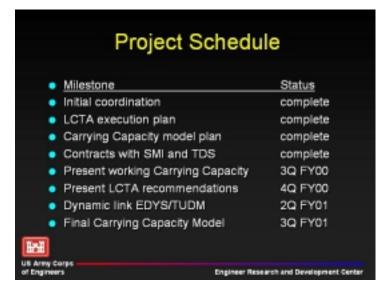














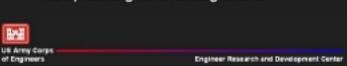
Engineer Research and Development Center

Impact on Installation Operations Capability - Objectively project and evaluate the impacts of potential or perceived conflicting land uses and

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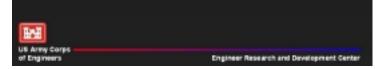
 Value - Facilitates stakeholder participation rather than divisive land use planning and management

management strategies



Conclusion

- Case study completion planned June 01
- Future needs Implementation support and planning



5 MCAGCC LMS Military Field Application FY00 IPR Summary of Comments and Responses

During the workshop, each participant was asked to provide comments on specific projects, general direction of MCAGCC military demonstration, and future direction and/or prioritization of future projects. This chapter summarizes the comments provided by the workshop participants. Table 1 lists each comment, who provided the comment, and the LMS response to the comment. Along with the response, the person responsible for addressing the issue is provided.

Table 1. Workshop participant comments/questions and responses.

No.	Commenter	Comment/Question	Response
1	ERDC/CERL	Who is the new POC to replace Jeff Foisy?	Answer: Lorrie Agnew (MCAGCC)
2	MCAGCC	Request for information and recommendations on non-exotic, non-invasive vegetative wind breaks.	Accessing VegSpec at http://plants.usda.gov/ will allow you to select the appropriate native species for wind barriers. Will provide species list to MCAGCC. (CERL/Skidmore)
3	MCAGCC	What type of dust collectors and saltation device are recommended?	Passive dust collectors are recommended and SENSIT is recommended for saltation readings. (Skidmore)
4	Skidmore	Need micronet data from Phil Chambers.	Request will be forwarded to Chambers. (MCAGCC)
5	Shepard/Miller	Asked for EDYS input from MCAGCC and other users.	Take out cheatgrass. (MCAGCC) Add red brome and burr sage to the model. (Fort Irwin)
6	MCAGCC	MCAGCC wants to be sure that they are not paying for ERDC/CERL LMS projects. There is concern about the possibility of funds being mixed on several LCTA projects.	The current projects funded by ERDC/CERL and MCAGCC are distinct and separate. No funds have been mixed on either SOW. (Kellogg)
7	MCAGCC	Data structure follows Tri-Service CADD/GISTEC, currently looking at directory structure with report and data capabilities.	Concur. (Dilks)
8	MCAGCC	Integrated multimedia is a concern for getting information to the user and getting that to the management level in a user-friendly way.	Concur. (Dilks)

No.	Commenter	Comment/Question	Response
9	MCAGCC	Construction of web-based map dissemination to use for UXO applications, using objects programmer.	Concur. Will look into applicability. (Dilks)
10	Fort Irwin	Request for TUDM information.	TUDM report will be sent out to Fort Irwin. (Goran)
11	Fort Irwin	What is the status of RWEQ?	Wind erosion advisory group is currently working on RWEQ. Will forward request to Alan Anderson. (Skidmore/Gebhart)
12	MDEP	More information is needed on data repository, when will this be available?	Will advise. (Dilks)
13	Navy	How are plant shapes accounted for in the wind erosion models?	Concur. Plant shape effects on wind erosion are currently being studied. (Skidmore)

Appendix A: MCAGCC LMS IPR Letter of Invitation and List of Invitees

CEERD-CN-C (70-1s)

03 March 2000

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: FY00 In-Progress Review (IPR) for Mojave Desert (Twentynine Palms) Land Management System (LMS) Military Field Application Site, 13 April 2000, Palm Springs, California

- 1. The first IPR for the Mojave Desert Marine Corps Air Ground Combat Center (MCAGCC) LMS Military Field Application Site will be held at the Holiday Inn Palm Mountain Resort, 155 South Belardo in Palm Springs, CA. This IPR is designed to provide participants with an opportunity to learn about and influence the projects underway or planned for the Mojave Desert region and MCAGCC related to LMS. We will also be discussing how MCAGCC and other interested installations will use the outcomes of these projects.
- 2. There will be an opportunity on Thursday for MCAGCC and other interested installation personnel to provide feedback on specific projects, relate information on the general direction of the MCAGCC military demo, and input to prioritize future LMS (and related) projects at MCAGCC. Other participating organizations will also have the opportunity to contribute their input.
- 3. For additional information on LMS, see the enclosed brochure and review the LMS website at http://www.denix.osd.mil/LMS.
- 4. A block of rooms has been reserved at the Holiday Inn Palm Mountain Resort, 155 South Belardo. Rooms must be reserved by 13 March 2000 to ensure availability. Rooms are \$89.00 plus tax, to make your reservations contact (760) 325-1301. You must mention that you are taking part in the Twentynine Palms IPR meeting to receive this special rate. Further in-

formation regarding local restaurants and attractions can be found at http://www.palmsprings.com.

5. RSVP to Ms. Heidi Howard by Thursday, 06 April 2000 if you plan to attend this IPR. For questions concerning the IPR, please contact Ms. Heidi Howard at (217) 352-6511 ext. 7601, h-howard@cecer.army.mil. Ms. Howard is helping coordinate the IPR and can assist you with any issues.

Encl

WILLIAM D. GORAN LMS Coordinator

CEERD-CN-C (70-1s)

SUBJECT: FY00 In-Progress Review (IPR) for Mojave Desert (Twentynine Palms) Land Management System (LMS) Military Field Application Site, 13 April 2000, Palm Springs, California

DISTRIBUTION:

Alan Anderson

John Barko

Pat Black

Mike Childress

Kelly Dilks

Clarence Everly

Jeff Foisy

Dick Gebhart

William Goran

Robert Holtz

Jeff Holland

Heidi Howard

Wayne Johnson

Bruce Jones

Liz Kellogg

Robert Koenigs

Richard Lawrence

Dawn Lawson

Ray Madden

Kim Majerous

Terry McLendon

Valerie Morrill

Dave Mouat

Jim Omans

Kip Otis-Diehl

David Price

Robert Riggins

Marilyn Ruiz

Ed Skidmore

Ruth Sparks

Scott Tweddale

CEERD-CN-C (70-1s)

SUBJECT: FY00 In-Progress Review (IPR) for Mojave Desert (Twentynine Palms) Land Management System (LMS) Military Field Application Site, 13 April 2000, Palm Springs, California

AGENDA

0800	IPR Opens at Holiday Inn Palm Mountain Resort
0815-0845	Overview LMS Introduction, Bill Goran
0845-0915	MCAGCC Introduction, Dick Gebhart
0915-1015	Web-based Map Dissemination, Kelly Dilks
1015-1030	Break
1030-1115	Wind Erosion, Ed Skidmore
1115-1200	Carrying Capacity, Dave Price
1200-1300	Lunch Break
1300-1330	LCTA/ITAM at MCAGCC, Liz Kellogg (tentative)
1330-1415	SERDP Remote Sensing, Scott Tweddale
1415-1500	SERDP Alternative Futures, Dave Mouat (tentative)
1500-1545	SERDP Arid Lands Restoration, Dick Gebhart
1545-1600	Break
1500-1600	Comment and Review
1600-1700	Plans for the Future

Appendix B: MCAGCC LMS IPR List of Attendees Information

MEMORANDUM FOR (LMS POC)

SUBJECT: FY00 In-Progress Review (IPR) Attendees List for Twentynine Palms Land Management System (LMS) Military Field Application Site, April 13, 2000, Palm Springs, California.

Lorrie Agnew

Mike Childress

Kelly Dilks

Clarence Everly

Jeff Foisy

Tom Frank

Dick Gebhart

William Goran

Heidi Howard

Liz Kellogg

Richard Lawrence

Dawn Lawson

Terry McLendon

Kip Otis-Diehl

Val Prehoda

David Price

Doug Ramsey

Ed Skidmore

Ruth Sparks

Paul Tueller

Scott Tweddale

Robert Washington-Allen

NAME	ORGANIZATION	ADDRESS	PHONE and EMAIL
Lorrie Agnew	MCAGCC	MCAGCC Box 788110 Attn: L. Agnew 29 Palms, CA 92278	(760) 830-7396 ext 244 agnewlr@29palms.usmc.mil
Mike Childress	Shepherd Miller Inc.	Shepherd Miller Inc. 3801 Automation Way, Suite 100 Fort Collins, CO 80525	(970) 223-9600 (970) 223-7171 mchildress@shepmill.com
Kelly Dilks	ERDC/CERL	ERDC/CERL PO Box 9005 Champaign, IL 61826	(217) 352-6511 k-dilks@cecer.army.mil
Clarence Everly	Mojave Desert Ecosystem Program	Mojave Desert Ecosystem Program 222 East Main Street Suite 216 Barstow, CA. 92311	(760) 255-8896 everlyc@mojavedata.gov
Jeff Foisy	Mojave Desert Ecosystem Program	Mojave Desert Ecosystem Program 222 East Main Street Suite 216 Barstow, CA. 92311	(760) 255-8895 foisyj@mojavedata.gov
Tom Frank	University of Illinois	University of Illinois 220 Davenport Urbana, IL 61801	(217) 333-7248 frank@gis.uiuc.edu
Dick Gebhart	ERDC/CERL	ERDC/CERL PO Box 9005 Champaign, IL 61826	(217) 352-6511 d-gebhart@cecer.army.mil
William Goran	ERDC/CERL	ERDC/CERL PO Box 9005 Champaign, IL 61826	(217) 352-6511 w-goran@cecer.army.mil
Heidi Howard	ERDC/CERL	ERDC/CERL PO Box 9005 Champaign, IL 61826	(217) 352-6511 h-howard@cecer.army.mil
Liz Kellogg	Tierra Data Systems	Tierra Data Systems 10110 West Lilac Escondido, CA 92026	(760)749-2247 liz@tierradata.com
Richard Lawrence	ESRI	ESRI 380 New York Street Redlands, CA 92373-8100	(909) 793-2853 ext 1700 rlawerence@esri.com
Dawn Lawson	Naval Facilities Eng.	Commander SW Naval Facilities Eng. Com- mand (Dawn Lawson) 1220 Pacific Hwy. San Diego, CA 92132	(619) 532-3775 Law- sonDM@efdsw.navfac.navy.mil

Terry McLendon	Shepherd Miller Inc.	Shepherd Miller Inc. 3801 Automation Way, Suite 100 Fort Collins, CO 80525	(970) 223-9600 (970) 223-7171 mchildress@shepmill.com
Kip Otis-Diehl	MCAGCC	MCAGCC Box 788110 Attn: P. Otis-Diehl NREA 29 Palms, CA 92278	(760) 830-7396 ext 241 otisdiehlpk@29palms.usmc.mil
Val Prehoda	MCAGCC	MCAGCC Box 788110 Attn: V. Prehoda 29 Palms, CA 92278	(760) 830-7396 ext 238 prehodav@29palms.usmc.mil
David Price	ERDC/WES	ERDC/WES 909 Halls Ferry Road Vicksburg, MS 39180	(601) 634-4874 d-price@wes.army.mil
Doug Ramsey	Utah State University	Director, Remote Sensing/GIS Lab 9635 Ordmann Hill, USU Logan UT, 84322-9635	(435) 797-3783 dougr@cnr.usu.edu
Ed Skidmore	USDA-ARS	Kansas State University 1007B Throckmorton Hall Manhattan KS, 66506	(785) 532-6726 skidmore@ksu.edu
Ruth Sparks	Fort Irwin	Commander NTC and Fort Irwin AFZJ-PT PO Box 105100 ATTN: ITAM Office (Sparks) Fort Irwin, CA 92310-5100	(760) 380-5903 sparksr@irwin.army.mil
Paul Tueller	UNR	Dept Environmental & Resource Science University of Nevada Reno 1000 Valley Road Reno, NV 89512	(775) 784-4053 ptt@equinox.unr.edu
Scott Tweddale	ERDC/CERL	ERDC/CERL PO Box 9005 Champaign, IL 61826	(217) 352-6511 s-tweddale@cecer.army.mil
Robert Washing- ton-Allen	Oakridge	ORNL P.O. Box 2008, M56407, Bldg 1507 Oak Ridge, TN 37831-6407	(865) 241-5159 obq@ornl.gov

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Marine Corps Air Ground Combat Center LMS IPR Attendees (20)

31 5/00

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Heidi Howard, Dick Gebhart, and Willi	am Goran	62720A917
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14. ABSTRACT

The Land Management System (LMS) is an initiative of the U.S. Army Corps of Engineers (USACE) Engineer Research and Development Center (ERDC) focused on improving landscape analysis and landscape management capabilities in several of the Corps of Engineers major mission areas.

The purpose of LMS is to provide relevant science, tools, and information to land and water resource managers and decisionmakers with the goal of enhancing their ability to understand and communicate past, current, and potential impacts of management actions on land and water resources.

In 1999, the Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine Palms, CA, was officially designated as a field application site.

Field Application Site In-Progress Reviews (IPRs) are designed to ensure that the stages of evaluation, modification, and documentation are fulfilled. The first IPR workshop was held 13 April 2000. The objectives of this IPR were to provide a forum where personnel involved with specific MCAGCC LMS projects could discuss the progress of each effort, identify the relationships between projects, and solicit input from potential users of the resulting products. Results of the IPR are documented in this report to ensure project improvements and adjustments occur and to assist with the next IPR.

15. SUBJECT TERMS

Land Management Systems (LMS), Marine Corps Air Ground Combat Center (MCAGCC), military land management, in-progress review (IPR)

16. SECURITY CLASS	SIFICATION OF:		17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Dick Gebhart
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified	SAR	84	19b. TELEPHONE NUMBER (include area code) (217) 352-6511, X-6391